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October 27, 2004

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APPLICATION NUMBER: 60/509,128  
FILING DATE: October 06, 2003  
RELATED PCT APPLICATION NUMBER: PCT/US04/32894

Certified by



Jon W Dudas

Acting Under Secretary of Commerce  
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PTO/SB/16 (5-03)

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## PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

17302 PTO  
601509128



INVENTOR(S)					
Given Name (first and middle [if any])		Family Name or Surname		Residence (City and either State or Foreign Country)	
Victor		Rebolledo		Aguascalientes, Mexico	
<input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (280 characters max)					
IMPROVED TUB SUSPENSION ASSEMBLIES					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number		23643		<div>Place Customer Number Bar Code Label here</div>	
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ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/>	Specification	Number of Pages	2	<input type="checkbox"/> CD(s), Number	
<input checked="" type="checkbox"/>	Drawing(s)	Number of Sheets	1	<input type="checkbox"/> Other (specify)	
<input type="checkbox"/>	Application Data Sheet. See 37 CFR 1.76				
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)					
<input checked="" type="checkbox"/>	Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE AMOUNT (\$)
<input type="checkbox"/>	A check or money order is enclosed to cover the filing fees				
<input checked="" type="checkbox"/>	The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number				10-0435
<input type="checkbox"/>	Payment by credit card. Form PTO-2038 is attached.				\$80.00
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/>	No.				
<input type="checkbox"/>	Yes, the name of the U.S. Government agency and the Government contract number are: _____				

Respectfully submitted,

SIGNATURE

*Richard D. Conard*

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317-231-7285

Date

10/06/03

REGISTRATION NO.

27321

(if appropriate)

Docket Number:

15690-TUB

### USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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P16SMALL/REV05

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***IN THE UNITED STATES PATENT AND TRADEMARK OFFICE***

<i>Group:</i>	Unknown	}
<i>Confirmation No.:</i>	Unknown	}
<i>Application No.:</i>	Unknown	}
<i>Invention:</i>	IMPROVED TUB SUSPENSION ASSEMBLIES	}
<i>Applicants:</i>	Victor Rebolledo	}
<i>Filed:</i>	Herewith	}
<i>Attorney</i>		}
<i>Docket:</i>	15690-TUB	}
<i>Examiner:</i>	Unknown	}

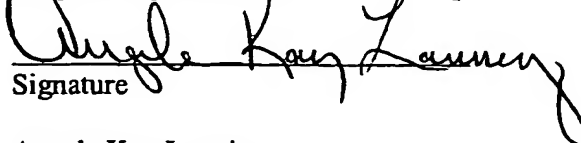
**CERTIFICATE UNDER 37 C.F.R. § 1.10**

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Sir:

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail, in an envelope addressed to the Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, Mail Stop Provisional Application, on October 6, 2003. The Express Mail mailing label number is EV 337241524 US.

Respectfully submitted,

  
Signature

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### Improved Tub Suspension Assemblies

A tub is supported by tub assemblies as per enclosed drawing. Tub is filled completely or partially with media. Media can be metal parts, plastic parts, clothes, etc. During loading with media, or afterwards, the tub is either completely or partially filled with a liquid. Liquid can be water, paint, cleaning agents, other liquids. After immersion of the media with the liquid, tub may be agitated for a specific time period. After agitation, if required, the liquid will be drained. After drainage of liquid, tub is set into rotation to spin dry the media in the tub.

The suspension of the present invention can be used in, for example, household washing machines, industrial washing machines, laboratory painting devices, industrial painting machines, and the like.

The suspension of the present invention can also be used in applications in which the tub is oriented horizontally with agitating ribs on the inside. The tub is partially filled with media, which again can be metal parts, plastic parts, clothes, or the like. When the tub is set in motion, the ribs pick up the media, raise it up and media falls back to the low side of the tub. This introduces vibrations to the tub assembly. These vibrations can be dampened by using the tub suspension assembly of the present invention. Possible applications for this embodiment include, for example, household dryers, industrial dryers, and the like.

The invention may best be understood by referring to the following detailed description and accompanying drawing which illustrates the invention. The drawing is a schematic diagram of a system constructed according to the invention.

Turning to the drawings, both ends of a rod 1 are enlarged. This can be done by flattening or by a bend. End A of rod 1 is fastened to the machine frame. End B of rod 1 is free and serves as stop, as will be explained later. One end of a component 2 is threaded to serve as mount for an extension spring 3. The other end of component 2 can be used as a clip to fasten component 2 into a mounting hole C. One end of the extension spring is hooked into the rod 1, as illustrated at D. A dampening element 4 can be, for example, a compression spring, a hydraulic damper, a pneumatic damper, a damper made out of rubber or plastic, or other suitable material. Dampening element 4 can be fastened into component 2, or can be free floating

When the tub is filled with media and liquid, the distance E becomes smaller. In case of unbalance, distance E may become zero and dampening element 4 may impact a washer 5. By using dampening element 4, any impact between dampening element 4 and washer 5 is softened.

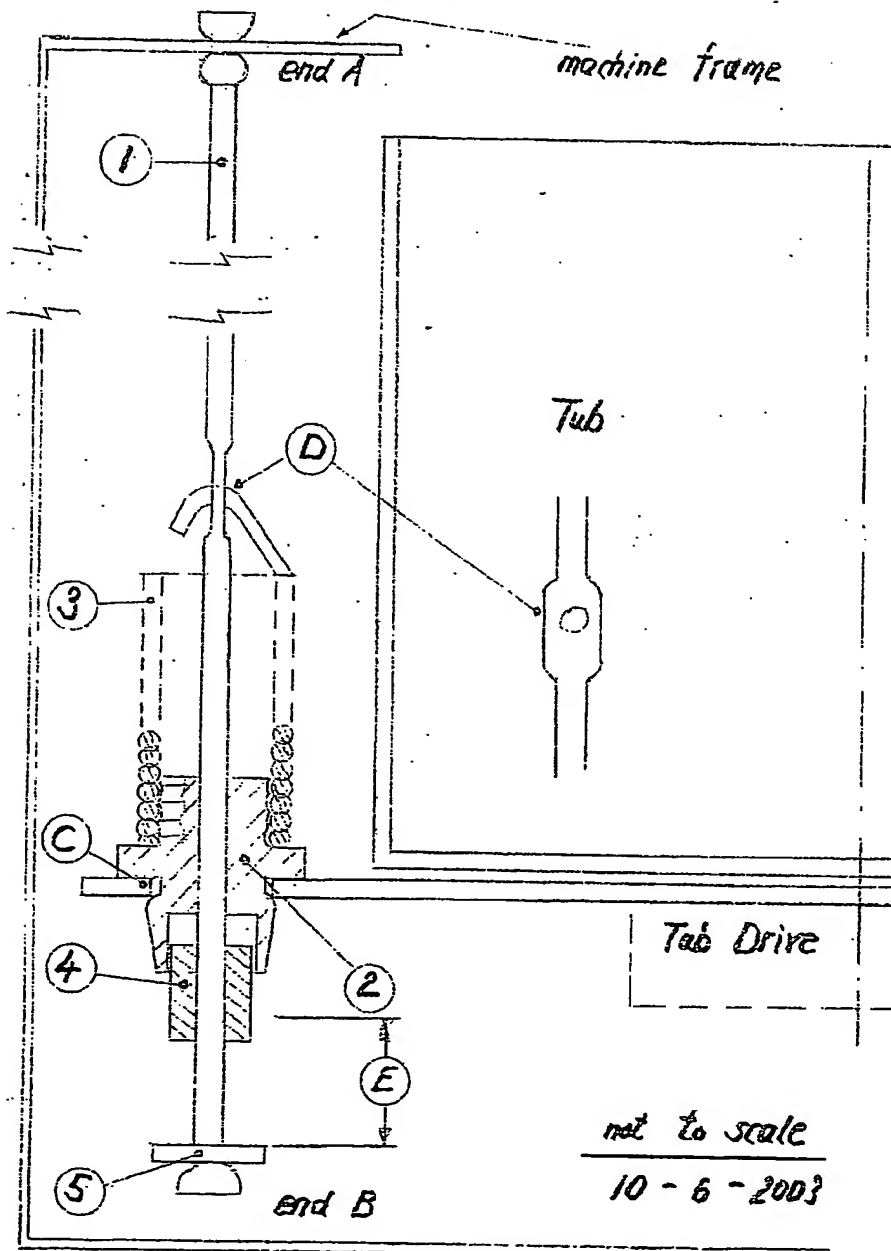
If it is necessary to change the load deflection rate of the system, dampening element 4 can be a specially designed compression spring. In that case, the initial load deflection rate will be that of the extension spring. After deflection contact is made with the compression spring, the new deflection rate of the system will be higher and can be controlled by system and component design.

Use of an extension spring 3 simplifies the design and permits a reduction in components. This permits the elimination of a compressed air damper often found in prior art assemblies. A good dynamic balance normally will require low spring rates. Low spring rates can be achieved with extension springs.

Dampening at impact of dampening element 4 against washer 5 can be controlled, for example, by selecting a different softness of the dampening element 4.

Dampening element 4 can be a specially designed compression spring. When dampening element 4 is working in combination with extension spring 3, the loading deflection rate of the system can be made non-linear.

# Tub Suspension Assembly



# Document made available under the Patent Cooperation Treaty (PCT)

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